

# SEQUENCE LISTING

<110> Bristol-Myers Squibb Company

<120> A NOVEL HUMAN LEUCINE-RICH REPEAT CONTAINING PROTEIN EXPRESSED  
PREDOMINATELY IN BONE MARROW, HLRRBM1

<130> D0067NP

<150> US 60/257,773

<151> 2000-12-22

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<170> PatentIn version 3.0

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Leu	Lys	Met	Ile	His	Asn	Ala	Leu	Arg	Phe	Ile	Pro	Val	Thr	Ser
1220						1225					1230			
Val	Val	Leu	Leu	Tyr	His	Arg	Leu	His	Pro	Glu	Glu	Val	Thr	Phe
1235						1240					1245			
His	Leu	Tyr	Leu	Ile	Pro	Ser	Asp	Cys	Ser	Ile	Arg	Lys	Glu	Leu
1250						1255					1260			
Glu	Leu	Cys	Tyr	Arg	Ser	Pro	Gly	Glu	Asp	Gln	Leu	Phe	Ser	Glu
1265						1270					1275			
Phe	Tyr	Val	Gly	His	Leu	Gly	Ser	Gly	Ile	Arg	Leu	Gln	Val	Lys
1280						1285					1290			
Asp	Lys	Lys	Asp	Glu	Thr	Leu	Val	Trp	Glu	Ala	Leu	Val	Lys	Pro
1295						1300					1305			
Gly	Asp	Leu	Met	Pro	Ala	Thr	Thr	Leu	Ile	Pro	Pro	Ala	Cys	Ile
1310						1315					1320			
Ala	Val	Pro	Ser	Pro	Leu	Asp	Ala	Pro	Gln	Leu	Leu	His	Phe	Val
1325						1330					1335			
Asp	Gln	Tyr	Arg	Glu	Gln	Leu	Ile	Ala	Arg	Val	Thr	Ser	Val	Glu
1340						1345					1350			
Val	Val	Leu	Asp	Lys	Leu	His	Gly	Gln	Val	Leu	Ser	Gln	Glu	Gln
1355						1360					1365			
Tyr	Glu	Arg	Val	Leu	Ala	Glu	Asn	Thr	Arg	Pro	Ser	Gln	Met	Arg
1370						1375					1380			
Lys	Leu	Phe	Ser	Leu	Ser	Gln	Ser	Trp	Asp	Arg	Lys	Cys	Lys	Asp
1385						1390					1395			
Gly	Leu	Tyr	Gln	Ala	Leu	Lys	Glu	Thr	His	Pro	His	Leu	Ile	Met
1400						1405					1410			
Glu	Leu	Trp	Glu	Lys	Gly	Ser	Lys	Lys	Gly	Leu	Leu	Pro	Leu	Ser
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Ser

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 <212> PRT  
 <213> Homo sapiens

<400> 4

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His Pro His Ile Gln Leu Leu Lys Ser Asn Arg Glu Leu Leu Val Thr  
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His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys Asn Asp  
35 40 45  
Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro Thr Gln  
50 55 60  
Pro Asp Lys Val Arg Lys Ile Leu Asp Leu Val Gln Ser Lys Gly Glu  
65 70 75 80  
Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln Gln Leu Ala Asp Ala  
85 90 95  
Tyr Val Asp Leu Arg Pro Trp Leu Leu Glu Ile Gly Phe Ser Pro Ser  
100 105 110  
Leu Leu Thr Gln Ser Lys Val Val Val Asn Thr Asp Pro Val Ser Arg  
115 120 125  
Tyr Thr Gln Gln Leu Arg His His Leu Gly Arg Asp Ser Lys Phe Val  
130 135 140  
Leu Cys Tyr Ala Gln Lys Glu Glu Leu Leu Leu Glu Glu Ile Tyr Met  
145 150 155 160  
Asp Thr Ile Met Glu Leu Val Gly Phe Ser Asn Glu Ser Leu Gly Ser  
165 170 175  
Leu Asn Ser Leu Ala Cys Leu Leu Asp His Thr Thr Gly Ile Leu Asn  
180 185 190  
Glu Gln Gly Glu Thr Ile Phe Ile Leu Gly Asp Ala Gly Val Gly Lys  
195 200 205  
Ser Met Leu Leu Gln Arg Leu Gln Ser Leu Trp Ala Thr Gly Arg Leu  
210 215 220  
Asp Ala Gly Val Lys Phe Phe Phe His Phe Arg Cys Arg Met Phe Ser  
225 230 235 240  
Cys Phe Lys Glu Ser Asp Arg Leu Cys Leu Gln Asp Leu Leu Phe Lys  
245 250 255  
His Tyr Cys Tyr Pro Glu Arg Asp Pro Glu Glu Val Phe Ala Phe Leu  
260 265 270  
Leu Arg Phe Pro His Val Ala Leu Phe Thr Phe Asp Gly Leu Asp Glu  
275 280 285  
Leu His Ser Asp Leu Asp Leu Ser Arg Val Pro Asp Ser Ser Cys Pro  
290 295 300  
Trp Glu Pro Ala His Pro Leu Val Leu Leu Ala Asn Leu Leu Ser Gly

305		310		315		320									
Lys	Leu	Leu	Lys	Gly	Ala	Ser	Lys	Leu	Leu	Thr	Ala	Arg	Thr	Gly	Ile
				325					330					335	
Glu	Val	Pro	Arg	Gln	Phe	Leu	Arg	Lys	Lys	Val	Leu	Leu	Arg	Gly	Phe
			340					345					350		
Ser	Pro	Ser	His	Leu	Arg	Ala	Tyr	Ala	Arg	Arg	Met	Phe	Pro	Glu	Arg
		355					360					365			
Ala	Leu	Gln	Asp	Arg	Leu	Leu	Ser	Gln	Leu	Glu	Ala	Asn	Pro	Asn	Leu
	370					375					380				
Cys	Ser	Leu	Cys	Ser	Val	Pro	Leu	Phe	Cys	Trp	Ile	Ile	Phe	Arg	Cys
385					390					395					400
Phe	Gln	His	Phe	Arg	Ala	Ala	Phe	Glu	Gly	Ser	Pro	Gln	Leu	Pro	Asp
				405					410					415	
Cys	Thr	Met	Thr	Leu	Thr	Asp	Val	Phe	Leu	Leu	Val	Thr	Glu	Val	His
			420					425					430		
Leu	Asn	Arg	Met	Gln	Pro	Ser	Ser	Leu	Val	Gln	Arg	Asn	Thr	Arg	Ser
		435					440					445			
Pro	Val	Glu	Thr	Leu	His	Ala	Gly	Arg	Asp	Thr	Leu	Cys	Ser	Leu	Gly
	450					455					460				
Gln	Val	Ala	His	Arg	Gly	Met	Glu	Lys	Ser	Leu	Phe	Val	Phe	Thr	Gln
465					470					475					480
Glu	Glu	Val	Gln	Ala	Ser	Gly	Leu	Gln	Glu	Arg	Asp	Met	Gln	Leu	Gly
				485					490					495	
Phe	Leu	Arg	Ala	Leu	Pro	Glu	Leu	Gly	Pro	Gly	Gly	Asp	Gln	Gln	Ser
			500					505					510		
Tyr	Glu	Phe	Phe	His	Leu	Thr	Leu	Gln	Ala	Phe	Phe	Thr	Ala	Phe	Phe
		515					520					525			
Leu	Val	Leu	Asp	Asp	Arg	Val	Gly	Thr	Gln	Glu	Leu	Leu	Arg	Phe	Phe
	530					535					540				
Gln	Glu	Trp	Met	Pro	Pro	Ala	Gly	Ala	Ala	Thr	Thr	Ser	Cys	Tyr	Pro
545					550					555					560
Pro	Phe	Leu	Pro	Phe	Gln	Cys	Leu	Gln	Gly	Ser	Gly	Pro	Ala	Arg	Glu
				565					570					575	
Asp	Leu	Phe	Lys	Asn	Lys	Asp	His	Phe	Gln	Phe	Thr	Asn	Leu	Phe	Leu
			580					585					590		
Cys	Gly	Leu	Leu	Ser	Lys	Ala	Lys	Gln	Lys	Leu	Leu	Arg	His	Leu	Val
		595					600					605			
Pro	Ala	Ala	Ala	Leu	Arg	Arg	Lys	Arg	Lys	Ala	Leu	Trp	Ala	His	Leu
	610					615					620				
Phe	Ser	Ser	Leu	Arg	Gly	Tyr	Leu	Lys	Ser	Leu	Pro	Arg	Val	Gln	Val
625					630					635					640

Glu Ser Phe Asn Gln Val Gln Ala Met Pro Thr Phe Ile Trp Met Leu  
 645 650 655  
 Arg Cys Ile Tyr Glu Thr Gln Ser Gln Lys Val Gly Gln Leu Ala Ala  
 660 665 670  
 Arg Gly Ile Cys Ala Asn Tyr Leu Lys Leu Thr Tyr Cys Asn Ala Cys  
 675 680 685  
 Ser Ala Asp Cys Ser Ala Leu Ser Phe Val Leu His His Phe Pro Lys  
 690 695 700  
 Arg Leu Ala Leu Asp Leu Asp Asn Asn Asn Leu Asn Asp Tyr Gly Val  
 705 710 715 720  
 Arg Glu Leu Gln Pro Cys Phe Ser Arg Leu Thr Val Leu Arg Leu Ser  
 725 730 735  
 Val Asn Gln Ile Thr Asp Gly Gly Val Lys Val Leu Ser Glu Glu Leu  
 740 745 750  
 Thr Lys Tyr Lys Ile Val Thr Tyr Leu Gly Leu Tyr Asn Asn Gln Ile  
 755 760 765  
 Thr Asp Val Gly Ala Arg Tyr Val Thr Lys Ile Leu Asp Glu Cys Lys  
 770 775 780  
 Gly Leu Thr His Leu Lys Leu Gly Lys Asn Lys Ile Thr Ser Glu Gly  
 785 790 795 800  
 Gly Lys Tyr Leu Ala Leu Ala Val Lys Asn Ser Lys Ser Ile Ser Glu  
 805 810 815  
 Val Gly Met Trp Gly Asn Gln Val Gly Asp Glu Gly Ala Lys Ala Phe  
 820 825 830  
 Ala Glu Ala Leu Arg Asn His Pro Ser Leu Thr Thr Leu Ser Leu Ala  
 835 840 845  
 Ser Asn Gly Ile Ser Thr Glu Gly Gly Lys Ser Leu Ala Arg Ala Leu  
 850 855 860  
 Gln Gln Asn Thr Ser Leu Glu Ile Leu Trp Leu Thr Gln Asn Glu Leu  
 865 870 875 880  
 Asn Asp Glu Val Ala Glu Ser Leu Ala Glu Met Leu Lys Val Asn Gln  
 885 890 895  
 Thr Leu Lys His Leu Trp Leu Ile Gln Asn Gln Ile Thr Ala Lys Gly  
 900 905 910  
 Thr Ala Gln Leu Ala Asp Ala Leu Gln Ser Asn Thr Gly Ile Thr Glu  
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 Ile Cys Leu Asn Gly Asn Leu Ile Lys Pro Glu Glu Ala Lys Val Tyr  
 930 935 940  
 Glu Asp Glu Lys Arg Ile Ile Cys Phe  
 945 950

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 gtggatccaa agcaaagctc agagcgacgg ctccaccctg cagcagggct cctttgagtt 120  
 cttcagttgc ttgtacgaga tccaggagga ggagtttata cagcaggccc tgagccactt 180  
 ccaggtgatc gtggtcagca acattgcctc caagatggag cacatgggtct cctcgttctg 240  
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 cggggaag 308

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 gaccacgatc acctggaagt g 21

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 tccactgcaa caggtccatc 80

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Leu Ser Leu Leu Ile Thr Thr Arg Pro Thr Ala Leu Glu  
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<211> 13

<212> PRT

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<400> 11

Gly Leu Leu Arg Gln Thr Ser Arg Thr Thr Thr Ala Val  
1 5 10

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<400> 12

Ser Phe Leu Ala Leu Thr Ser Arg Phe Leu Phe Gly Leu  
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Met Asn Gln Ser Ala Thr Glu Cys Ser Met  
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<210> 14

<211> 514

<212> PRT

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<400> 14

Met Cys Phe Ile Pro Leu Val Cys Trp Ile Val Cys Thr Gly Leu Lys  
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Gln Gln Met Glu Ser Gly Lys Ser Leu Ala Gln Thr Ser Lys Thr Ser  
20 25 30

Thr Ala Val Tyr Val Phe Phe Leu Ser Ser Leu Leu Gln Pro Arg Gly  
35 40 45

Gly Ser Gln Glu His Gly Leu Cys Ala His Leu Trp Gly Leu Cys Ser  
50 55 60

Leu Ala Ala Asp Gly Ile Trp Asn Gln Lys Ile Leu Phe Glu Glu Ser  
65 70 75 80

Asp Leu Arg Asn His Gly Leu Gln Lys Ala Asp Val Ser Ala Phe Leu  
85 90 95



Arg	Met	Asn	Leu	Phe	Gln	Lys	Glu	Val	Asp	Cys	Glu	Lys	Phe	Tyr	Ser		
			100					105					110				
Phe	Ile	His	Met	Thr	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Tyr	Tyr	Leu		
		115					120					125					
Leu	Glu	Glu	Glu	Lys	Glu	Gly	Arg	Thr	Asn	Val	Pro	Gly	Ser	Arg	Leu		
	130					135					140						
Lys	Leu	Pro	Ser	Arg	Asp	Val	Thr	Val	Leu	Leu	Glu	Asn	Tyr	Gly	Lys		
	145				150					155					160		
Phe	Glu	Lys	Gly	Tyr	Leu	Ile	Phe	Val	Val	Arg	Phe	Leu	Phe	Gly	Leu		
				165					170					175			
Val	Asn	Gln	Glu	Arg	Thr	Ser	Tyr	Leu	Glu	Lys	Lys	Leu	Ser	Cys	Met		
			180					185					190				
Ile	Ser	Gln	Gln	Ile	Arg	Leu	Glu	Leu	Leu	Lys	Trp	Ile	Glu	Val	Lys		
		195					200					205					
Ala	Lys	Ala	Lys	Lys	Leu	His	Asp	Gln	Pro	Ser	Gln	Leu	Glu	Leu	Phe		
	210					215					220						
Tyr	Cys	Leu	Tyr	Glu	Met	Gln	Glu	Glu	Asp	Phe	Val	Gln	Arg	Ala	Met		
	225				230					235					240		
Asp	Tyr	Phe	Pro	Lys	Ile	Glu	Ile	Asn	Leu	Ser	Thr	Arg	Met	Asp	His		
				245					250					255			
Met	Val	Ser	Ser	Phe	Cys	Ile	Glu	Asn	Cys	His	Arg	Val	Glu	Ser	Leu		
			260					265					270				
Ser	Leu	Gly	Phe	Leu	His	Asn	Met	Pro	Lys	Glu	Glu	Glu	Glu	Glu	Glu		
		275					280					285					
Lys	Glu	Gly	Arg	His	Leu	Asp	Met	Val	Gln	Cys	Val	Leu	Pro	Ser	Ser		
	290					295					300						
Ser	His	Ala	Ala	Cys	Ser	His	Gly	Leu	Gly	Arg	Cys	Gly	Leu	Ser	His		
	305				310					315					320		
Glu	Cys	Cys	Phe	Asp	Ile	Ser	Leu	Val	Leu	Ser	Ser	Asn	Gln	Lys	Leu		
				325					330					335			
Val	Glu	Leu	Asp	Leu	Ser	Asp	Asn	Ala	Leu	Gly	Asp	Phe	Gly	Ile	Arg		
			340					345					350				
Leu	Leu	Cys	Val	Gly	Leu	Lys	His	Leu	Leu	Cys	Asn	Leu	Lys	Lys	Leu		
		355					360					365					
Trp	Leu	Val	Asn	Ser	Ala	Leu	Arg	Gln	Ser	Val	Val	Gln	Leu	Cys	Pro		
	370					375					380						
Arg	Tyr	Ser	Ala	Leu	Ile	Arg	Ile	Ser	Arg	Thr	Phe	Thr	Ala	Arg	Gln		
	385				390				395						400		
His	Ser	Arg	Arg	Gln	Gly	Ile	Lys	Leu	Leu	Cys	Glu	Gly	Leu	Leu	His		
				405				410						415			

Pro Asp Cys Lys Leu Gln Val Leu Glu Leu Asp Asn Cys Asn Leu Thr  
420 425 430

Ser His Cys Cys Trp Asp Leu Ser Thr Leu Leu Thr Ser Ser Gln Ser  
435 440 445

Leu Arg Lys Leu Ser Leu Gly Asn Asn Asp Leu Gly Asp Leu Gly Val  
450 455 460

Met Met Phe Cys Glu Val Leu Lys Gln Gln Ser Cys Leu Leu Gln Asn  
465 470 475 480

Leu Gly Leu Ser Glu Met Tyr Phe Asn Tyr Glu Thr Lys Ser Ala Leu  
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Glu Thr Leu Gln Glu Glu Lys Pro Glu Leu Thr Val Val Phe Glu Pro  
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Ser Trp

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<212> PRT  
<213> homo sapiens

<400> 15

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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala  
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His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr  
35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln  
50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg  
65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe  
85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr  
100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys  
115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser  
130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu  
145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala  
165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro  
 180 185 190  
 Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu  
 195 200 205  
 Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg  
 210 215 220  
 Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr  
 225 230 235 240  
 Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu  
 245 250 255  
 Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu  
 260 265 270  
 Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His  
 275 280 285  
 Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val  
 290 295 300  
 Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro  
 305 310 315 320  
 Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala  
 325 330 335  
 Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly  
 340 345 350  
 Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser  
 355 360 365  
 Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile  
 370 375 380  
 Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser  
 385 390 395 400  
 Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly  
 405 410 415  
 Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln  
 420 425 430  
 Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile  
 435 440 445  
 Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln  
 450 455 460  
 Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly  
 465 470 475 480  
 Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp  
 485 490 495  
 Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu

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Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr
		515					520					525			
Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser
		530				535					540				
Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln
						550					555				560
Ala	Gln	Pro	Leu	Gly	Pro	Gln	Leu	Arg	Asp	Leu	Cys	Ser	Leu	Ala	Ala
				565					570					575	
Glu	Gly	Ile	Trp	Gln	Lys	Lys	Thr	Leu	Phe	Ser	Pro	Asp	Asp	Leu	Arg
			580					585					590		
Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly
		595					600					605			
Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu
		610				615					620				
Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu
						630					635				640
Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr
				645					650					655	
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg
			660					665					670		
Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn
			675				680					685			
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val
						695					700				
Pro	Ser	Leu	Gln	Leu	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His
						710					715				720
Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala
				725					730					735	
His	Phe	Glu	Glu	Met	Gly	Met	Cys	Val	Glu	Thr	Asp	Met	Glu	Leu	Leu
			740					745					750		
Val	Cys	Thr	Phe	Cys	Ile	Lys	Phe	Ser	Arg	His	Val	Lys	Lys	Leu	Gln
			755				760					765			
Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val
						775					780				
Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu
						790					795				800
Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser
				805					810					815	
Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu
			820				825						830		

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly  
 835 840 845  
 Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn  
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 Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala  
 865 870 875 880  
 Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu  
 885 890 895  
 Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln  
 900 905 910  
 Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp  
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 Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu  
 930 935 940  
 Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln  
 945 950 955 960  
 Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln  
 965 970 975  
 Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met  
 980 985 990  
 Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser Thr Ser  
 995 1000 1005  
 Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His  
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 Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe  
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 Val Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu  
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 His Thr Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr  
 1070 1075 1080  
 Gly Pro Val Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr  
 1085 1090 1095  
 Arg Val His Phe Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr  
 1100 1105 1110  
 Gly Leu Cys Phe Val Met Arg Glu Ala Val Thr Val Glu Ile Glu  
 1115 1120 1125  
 Phe Cys Val Trp Asp Gln Phe Leu Gly Glu Ile Asn Pro Gln His  
 1130 1135 1140

Ser Trp Met Val Ala Gly Pro Leu Leu Asp Ile Lys Ala Glu Pro  
 1145 1150 1155  
 Gly Ala Val Glu Ala Val His Leu Pro His Phe Val Ala Leu Gln  
 1160 1165 1170  
 Gly Gly His Val Asp Thr Ser Leu Phe Gln Met Ala His Phe Lys  
 1175 1180 1185  
 Glu Glu Gly Met Leu Leu Glu Lys Pro Ala Arg Val Glu Leu His  
 1190 1195 1200  
 His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro Leu Gly Val Leu  
 1205 1210 1215  
 Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro Val Thr Ser  
 1220 1225 1230  
 Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val Thr Phe  
 1235 1240 1245  
 His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Glu Leu  
 1250 1255 1260  
 Glu Leu Cys Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu  
 1265 1270 1275  
 Phe Tyr Val Gly His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys  
 1280 1285 1290  
 Asp Lys Lys Asp Glu Thr Leu Val Trp Glu Ala Leu Val Lys Pro  
 1295 1300 1305  
 Gly Asp Leu Met Pro Ala Thr Thr Leu Ile Pro Pro Ala Arg Ile  
 1310 1315 1320  
 Ala Val Pro Ser Pro Leu Asp Ala Pro Gln Leu Leu His Phe Val  
 1325 1330 1335  
 Asp Gln Tyr Arg Glu Gln Leu Ile Ala Arg Val Thr Ser Val Glu  
 1340 1345 1350  
 Val Val Leu Asp Lys Leu His Gly Gln Val Leu Ser Gln Glu Gln  
 1355 1360 1365  
 Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg Pro Ser Gln Met Arg  
 1370 1375 1380  
 Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg Lys Cys Lys Asp  
 1385 1390 1395  
 Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His Leu Ile Met  
 1400 1405 1410  
 Glu Leu Trp Glu Lys Gly Ser Lys Lys Gly Leu Leu Pro Leu Ser  
 1415 1420 1425

Ser

<210> 16

<211> 8  
 <212> PRT  
 <213> bacteriophage T7

<400> 16

Asp Tyr Lys Asp Asp Asp Asp Lys  
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<210> 17  
 <211> 733  
 <212> DNA  
 <213> homo sapiens

<400> 17  
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 aattcgaggg tgcaccgtca gtcttctct tccccccaaa acccaaggac accctcatga 120  
 tctcccgga tcttgaggtc acatgctgtg tggaggacgt aagccacgaa gaccctgagg 180  
 tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg 240  
 aggagcagta caacagcacg taccgtgtgg tcagcgtcct caccgtcctg caccaggact 300  
 ggctgaatgg caaggagtac aagtgaagg tctccaacaa agccctccca acccccatcg 360  
 agaaaaccat ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc 420  
 catcccggga tgagctgacc aagaaccagg tcagcctgac ctgcctgggtc aaaggcttct 480  
 atccaagcga catcgccgtg gagggggaga gcaatgggca gccggagaac aactacaaga 540  
 ccacgcctcc cgtgctggac tccgacggct ccttcttct ctacagcaag ctcaccgtgg 600  
 acaagagcag gtggcagcag gggaaagtct tctcatgtc cgtgatgcat gaggctctgc 660  
 acaaccacta cagcagaag agcctctccc tgtctccggg taaatgagtg cgacggccgc 720  
 gactctagag gat 733

<210> 18  
 <211> 1034  
 <212> PRT  
 <213> Homo sapiens

<400> 18

Met Ala Ser Thr Arg Cys Lys Leu Ala Arg Tyr Leu Glu Asp Leu Glu  
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 Asp Val Asp Leu Lys Lys Phe Lys Met His Leu Glu Asp Tyr Pro Pro  
 20 25 30  
 Gln Lys Gly Cys Ile Pro Leu Pro Arg Gly Gln Thr Glu Lys Ala Asp  
 35 40 45  
 His Val Asp Leu Ala Thr Leu Met Ile Asp Phe Asn Gly Glu Glu Lys  
 50 55 60

Ala Trp Ala Met Ala Val Trp Ile Phe Ala Ala Ile Asn Arg Arg Asp  
 65 70 75 80  
 Leu Tyr Glu Lys Ala Lys Arg Asp Glu Pro Lys Trp Gly Ser Asp Asn  
 85 90 95  
 Ala Arg Val Ser Asn Pro Thr Val Ile Cys Gln Glu Asp Ser Ile Glu  
 100 105 110  
 Glu Glu Trp Met Gly Leu Leu Glu Tyr Leu Ser Arg Ile Ser Ile Cys  
 115 120 125  
 Lys Met Lys Lys Asp Tyr Arg Lys Lys Tyr Arg Lys Tyr Val Arg Ser  
 130 135 140  
 Arg Phe Gln Cys Ile Glu Asp Arg Asn Ala Arg Leu Gly Glu Ser Val  
 145 150 155 160  
 Ser Leu Asn Lys Arg Tyr Thr Arg Leu Arg Leu Ile Lys Glu His Arg  
 165 170 175  
 Ser Gln Gln Glu Arg Glu Gln Glu Leu Leu Ala Ile Gly Lys Thr Lys  
 180 185 190  
 Thr Cys Glu Ser Pro Val Ser Pro Ile Lys Met Glu Leu Leu Phe Asp  
 195 200 205  
 Pro Asp Asp Glu His Ser Glu Pro Val His Thr Val Val Phe Gln Gly  
 210 215 220  
 Ala Ala Gly Ile Gly Lys Thr Ile Leu Ala Arg Lys Met Met Leu Asp  
 225 230 235 240  
 Trp Ala Ser Gly Thr Leu Tyr Gln Asp Arg Phe Asp Tyr Leu Phe Tyr  
 245 250 255  
 Ile His Cys Arg Glu Val Ser Leu Val Thr Gln Arg Ser Leu Gly Asp  
 260 265 270  
 Leu Ile Met Ser Cys Cys Pro Asp Pro Asn Pro Pro Ile His Lys Ile  
 275 280 285  
 Val Arg Lys Pro Ser Arg Ile Leu Phe Leu Met Asp Gly Phe Asp Glu  
 290 295 300  
 Leu Gln Gly Ala Phe Asp Glu His Ile Gly Pro Leu Cys Thr Asp Trp  
 305 310 315 320  
 Gln Lys Ala Glu Arg Gly Asp Ile Leu Leu Ser Ser Leu Ile Arg Lys  
 325 330 335  
 Lys Leu Leu Pro Glu Ala Ser Leu Leu Ile Thr Thr Arg Pro Val Ala  
 340 345 350  
 Leu Glu Lys Leu Gln His Leu Leu Asp His Pro Arg His Val Glu Ile  
 355 360 365  
 Leu Gly Phe Ser Glu Ala Lys Arg Lys Glu Tyr Phe Phe Lys Tyr Phe  
 370 375 380  
 Ser Asp Glu Ala Gln Ala Arg Ala Ala Phe Ser Leu Ile Gln Glu Asn



385		390		395		400
Glu Val Leu Phe Thr Met Cys Phe Ile Pro Leu Val Cys Trp Ile Val						
		405		410		415
Cys Thr Gly Leu Lys Gln Gln Met Glu Ser Gly Lys Ser Leu Ala Gln						
		420		425		430
Thr Ser Lys Thr Thr Thr Ala Val Tyr Val Phe Phe Leu Ser Ser Leu						
		435		440		445
Leu Gln Pro Arg Gly Gly Ser Gln Glu His Gly Leu Cys Ala His Leu						
		450		455		460
Trp Gly Leu Cys Ser Leu Ala Ala Asp Gly Ile Trp Asn Gln Lys Ile						
		465		470		475
Leu Phe Glu Glu Ser Asp Leu Arg Asn His Gly Leu Gln Lys Ala Asp						
		485		490		495
Val Ser Ala Phe Leu Arg Met Asn Leu Phe Gln Lys Glu Val Asp Cys						
		500		505		510
Glu Lys Phe Tyr Ser Phe Ile His Met Thr Phe Gln Glu Phe Phe Ala						
		515		520		525
Ala Met Tyr Tyr Leu Leu Glu Glu Glu Lys Glu Gly Arg Thr Asn Val						
		530		535		540
Pro Gly Ser Arg Leu Lys Leu Pro Ser Arg Asp Val Thr Val Leu Leu						
		545		550		555
Glu Asn Tyr Gly Lys Phe Glu Lys Gly Tyr Leu Ile Phe Val Val Arg						
		565		570		575
Phe Leu Phe Gly Leu Val Asn Gln Glu Arg Thr Ser Tyr Leu Glu Lys						
		580		585		590
Lys Leu Ser Cys Lys Ile Ser Gln Gln Ile Arg Leu Glu Leu Leu Lys						
		595		600		605
Trp Ile Glu Val Lys Ala Lys Ala Lys Lys Leu Gln Ile Gln Pro Ser						
		610		615		620
Gln Leu Glu Leu Phe Tyr Cys Leu Tyr Glu Met Gln Glu Glu Asp Phe						
		625		630		635
Val Gln Arg Ala Met Asp Tyr Phe Pro Lys Ile Glu Ile Asn Leu Ser						
		645		650		655
Thr Arg Met Asp His Met Val Ser Ser Phe Cys Ile Glu Asn Cys His						
		660		665		670
Arg Val Glu Ser Leu Ser Leu Gly Phe Leu His Asn Met Pro Lys Glu						
		675		680		685
Glu Glu Glu Glu Glu Lys Glu Gly Arg His Leu Asp Met Val Gln Cys						
		690		695		700
Val Leu Pro Ser Ser Ser His Ala Ala Cys Ser His Gly Leu Val Asn						
		705		710		715
						720

Ser His Leu Thr Ser Ser Phe Cys Arg Gly Leu Phe Ser Val Leu Ser  
 725 730 735  
 Thr Ser Gln Ser Leu Thr Glu Leu Asp Leu Ser Asp Asn Ser Leu Gly  
 740 745 750  
 Asp Pro Gly Met Arg Val Leu Cys Glu Thr Leu Gln His Pro Gly Cys  
 755 760 765  
 Asn Ile Arg Arg Leu Trp Leu Gly Arg Cys Gly Leu Ser His Glu Cys  
 770 775 780  
 Cys Phe Asp Ile Ser Leu Val Leu Ser Ser Asn Gln Lys Leu Val Glu  
 785 790 795 800  
 Leu Asp Leu Ser Asp Asn Ala Leu Gly Asp Phe Gly Ile Arg Leu Leu  
 805 810 815  
 Cys Val Gly Leu Lys His Leu Leu Cys Asn Leu Lys Lys Leu Trp Leu  
 820 825 830  
 Val Ser Cys Cys Leu Thr Ser Ala Cys Cys Gln Asp Leu Ala Ser Val  
 835 840 845  
 Leu Ser Thr Ser His Ser Leu Thr Arg Leu Tyr Val Gly Glu Asn Ala  
 850 855 860  
 Leu Gly Asp Ser Gly Val Ala Ile Leu Cys Glu Lys Ala Lys Asn Pro  
 865 870 875 880  
 Gln Cys Asn Leu Gln Lys Leu Gly Leu Val Asn Ser Gly Leu Thr Ser  
 885 890 895  
 Val Cys Cys Ser Ala Leu Ser Ser Val Leu Ser Thr Asn Gln Asn Leu  
 900 905 910  
 Thr His Leu Tyr Leu Arg Gly Asn Thr Leu Gly Asp Lys Gly Ile Lys  
 915 920 925  
 Leu Leu Cys Glu Gly Leu Leu His Pro Asp Cys Lys Leu Gln Val Leu  
 930 935 940  
 Glu Leu Asp Asn Cys Asn Leu Thr Ser His Cys Cys Trp Asp Leu Ser  
 945 950 955 960  
 Thr Leu Leu Thr Ser Ser Gln Ser Leu Arg Lys Leu Ser Leu Gly Asn  
 965 970 975  
 Asn Asp Leu Gly Asp Leu Gly Val Met Met Phe Cys Glu Val Leu Lys  
 980 985 990  
 Gln Gln Ser Cys Leu Leu Gln Asn Leu Gly Leu Ser Glu Met Tyr Phe  
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 Pro Glu Leu Thr Val Val Phe Glu Pro Ser Trp  
 1025 1030

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<213> Homo sapiens

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39

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<211> 37  
<212> DNA  
<213> Homo sapiens

<400> 20  
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37

<210> 21  
<211> 38  
<212> DNA  
<213> Homo sapiens

<400> 21  
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38

<210> 22  
<211> 37  
<212> DNA  
<213> Homo sapiens

<400> 22  
gcagcagtcg accatgtaca ctgcagtggt ggtcctg

37